SERIALISATION: THE INTERFACE OF SYNTAX AND LEXICON

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1. INTRODUCTION

Serial verb constructions in Alamblak[1] form part of a structural continuum between syntactic units and lexical items. Semantically, these constructions are governed by the constraint that only roots expressing commonly associated ideas may be serialised.[2] This semantico-pragmatic constraint is considered to be only a special case of a general lexicalisation rule, which is at once both motivating and restraining, that only commonly associated ideas tend to be lexicalised.

Complex Alamblak verbs are composed of serialised roots including verb, noun, adjective and time word roots.[3] These constructions range from highly productive (multiple) serial structures on the one hand, to syntactic and idiomatic compounds and derived causative and benefactive verb stems on the other. The least word-like of the serial constructions structurally are the highly productive, clearly analysable, and paraphrasable serials. Productivity, analysability and paraphrasability are reduced in varying degrees in other compound or derived verbs which developed from serial verbs historically.

Linguists have already debated how best to describe derived words and compounds, whether the lexicon or syntax with its generative rules or even a distinct morphological level is most appropriate.[4] This study expands the interface to even more syntactic-like structures. These 'serial' constructions earn a place in the continuum between syntax and lexicon by their semantico-syntactic features and by being the source of certain derived verbs and compounds whose historical development can be traced in several steps in the synchronic grammar. The paper avoids arguing for either the lexicon or syntax but tacitly implies that these forms are best understood as a bridge between the two.

2. SERIAL VERB ROOTS

The Alamblak verb stem comprises a nucleus with optional derivational and aspectual affixes, the nucleus may be manifested by a single or a sequence of juxtaposed roots or root plus embedded stem. The stem may be bounded by numerous inflectional affixes.

Examples of verbs with serial root nuclei are given in (1).[5]

(1)a muh -hambrë   -më -r -m
    climb-search.for-R.PST-3SM-3PL
    He climbed (it) searching/and searched for them.

  b wa -ha   -muh -hɨta-tañ-n -m -ko
    IMPER-DE.CAUS-*climb-put* -CPL-2S-3PL-ELEV
    Lift them up and leave them up there.

The verb roots in example (1) are temporally related as either simultaneous or sequential events. Certain sequences of events are open to the interpretation of being in a cause-effect relationship. In the clearest cases of a cause-effect relationship the Undergoer of the first root is the Actor of the second root, such as in (2).

(2) tat-noh-më   -an-r
    hit-die-R.PST-1S-3SM
    I killed him (by hitting him).

Certain verb roots have apparently acquired derivational functions as causatives or benefactives. These cases will be discussed in Section 5.

Root sequences may optionally be interpreted to have a head-modifier relationship where a stative, action, or process verb root modifies the main verb root as in (3). A sequential, temporal relationship is always a possible

(3) dbëhna-noh-më   -r
    sick -die-R.PST-3SM
    He was deathly sick/sick and died.

Certain verb roots may function as aspectual markers as well as basic verb roots. Thus tɨmbë *cut* in (4)a is glossed as *cessative* in (4)b where it functions as an aspect parallel with over 30 aspectual aspects which do not (any longer?) function as verb roots.

(4)a tir piñaft   timbhë-më   -r -t
    hand appendage cut   -R.PST-3SM-3SF
    He cut his finger.

  b tirt kipta-tɨmbhë -më   -r -t
    hand wash -*cessative*-R.PST-3SM-3SF
    He stopped washing his hand.

Reduplication may occur within the stem with roots of the nucleus which may be conjoined by a ligature as in (5)a and b. Reduplication has the effect of intensifying a quality or event or of combining a sequence of events as a single continuous or repetitive event.

(5)a duka -mɨmo   -ba -mɨmo   -më -r
    think-irrational-LIG-*irrational*-R.PST-3SM
    He was very confused.

  b hɨta-ba -hɨta-ha   -na -hatë
    put -LIG-*put* -DE.CAUS-*come*-SA
    Having distributed (them) as he brought (them).

c hip   -hip   -w   -a
   *perspire-perspire-*IMPF-1S
   I am continuing to perspire.

Having briefly described constructions with serial verb roots, we now
proceed to compare these with juxtaposed predicates (syntactic constructions).
We will see that while they share certain syntactic features, serial root
constructions exhibit word-like features in contrast to conjoined clauses,
placing them somewhere along a continuum between compound phrases and compound
words.

3. SERIAL VERB ROOTS AND JUXTAPOSED PREDICATES

Juxtaposed predicates which most resemble serial root constructions are
those manifested by repeated verb roots or stems as in (6).

(6)a yi, yi, yi, yi
      go go go go
      Going and going and going and going.

  b yak-hay -ni, yak-hay -ni, yohr   fur   -kih -më   -r
     *get-*CAUS*-go get-*CAUS*-go string.bag* MOTION*-full-*R.PST-3SM
     Getting and taking, getting and taking, the string bag filled up.

Although structurally similar to serial root constructions, the sequences
of roots and stems in (6) are not phonological words. In contrast to serial
root constructions they carry rising, i.e. non-final, intonation and may be
separated by pause. They are intonationally marked as distinct events and are
apparently conceptualised as such. We will, therefore, refer to these sequences
as juxtaposed clauses.

Serial root constructions are similar to repeated clauses manifested by
verb roots or stems in that the individual serialised roots generally must have
the same Actor. Certainly with reduplicated roots they necessarily have the
same Actor. This similarity does not distinguish serial constructions from
lexical compounds, however. The feature that relates serial constructions more
closely to juxtaposed clauses than to compound words is that serialised roots
individually bear a role relationship with NP's in the clause which is often the
same role that the complex as a whole bears with those NP's (cf. Section 4).

All other sequences of clauses separate verb roots to increasingly greater
degrees than those in (6) which interpose merely an intonational juncture.

(7)a Yakti-hambrë   -hañ, ri -fakti-ni-më   -r -r, nëthonr
      *touch-search.for-*PROG ELEV*-touch-go-*R.PST-3SM-3SM *forest.spirit*
      Feeling around, he reached across and touched him, the forest spirit,
      and went on.

  b Nëf   -hañ, Nakor nɨta   -buga-ni,   metm rhu-katëh-wë
     *strain-*PROG sago.palm *pulverise-all* -PROG.EVENT *women sit-stand-*IMPF-

     -nëm-m
     -1PL-3PL
     (The women) straining (the sago pulp), (the men) pulverising all of the
     sago palm, we wait for the women.

c Tita   - k‡fĕt nea -fek-r -t
   carry.on.shoulder- INF *come-get-3SM-3SF*
   He came and got her to carry her on his shoulders.

d Yent mi -yak- hatĕ, tita   -r -t
   girl ELEV-*get-* SA *carry.on.shoulder-3SM-3SF*
   Having gotten the girl down there, he carried her on his shoulders.

e a -i - kah-t -n tita   -rah-r -t
   HORT-*go-* IRR-3SF-G.DEP *carry.on.shoulder-FUT-3SM-3SF*
   Let her go, and if/when she does, he will carry her.

f Fek- r -t, tita   -r -t
   get- 3SM-3SF *carry.on.shoulder-3SM-3SF*
   He got her, (and) carried her on his shoulders.

g Dbĕhna-mĕ   -w -t. Nd‡natpnĕ tita   -r -t
   sick -R.PST-IMPF-3SF *therefore carry.on.shoulder-3SM-3SF*
   She has been sick. Therefore he carried her on his shoulders.

The sequences of clauses in (7) may be compared with the serial root (SR) construction in (8).

(8) Yĕnt mi -ak -tita   -r -t
     girl ELEV-*get-carry.on.shoulder-3SM-3SF*
     He got (a/the) girl down there, carried her on his shoulders.

The serial root construction in (8) is similar to the juxtaposed clause in (7)d in that it expresses a transparent complex of sequential events. The same transparency is absent in compound and idiomatic compound verbs (cf. Section 4). Furthermore, each verb root in (8) bears a semantic role relationship with the actor and undergoer of the clause. These relationships are exactly the same as those in the sentential paraphrase (7)d. Again, the discussion in the next section will show to what degree pure compounds lack these relationships.

Differences between serial root constructions and sentential constructions include contrasts of scope for elevationals, negatives, illocutionary force and the agent role of the clause. In the first case, SR constructions are more compact than sentences but more analysable than compound words. The elevational prefix relates to all roots in the stem unless an elevational suffix occurs. In that case the prefix applies to the first root(s) and the suffix applies to the last root. In subordinate clauses, by contrast, an elevational prefix applies only to the verb of which it is a constituent part and does not extend to the next predicate as in (9)c.

(9)a wa   -rim -ak -hĕta-n -m
      IMPER-ELEV-*get-put* -2S-3PL
      Get them (and) put them on a level plane away from me.

b wa   -yarim-ak -hĕta-n -m -ko
   IMPER-ELEV *-get‡put* -2S-3PL-ELEV
   Get them on a level plane toward me (and) put them up (there).

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    c  wa   -rim -ak -kah-n -n,     wa   -rim -hëta-n -m
       IMPER-ELEV-get-IRR-2S-G.DEP IMPER-ELEV-put -2S-3PL
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Get (them) on a level plane away from me, and if/when you do, put them on a level plane away from me.

Secondly, only one negative word may occur with a SR construction (emphasising that the SR is a single word) but its scope may cover any one or any combination of verb roots (emphasising the analysable nature of the SR). This is illustrated in (10) where sentence a may be followed by any of the sentences b-g which clarify just which verb root(s) the negative in sentence a applies to.

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(10)a  ritm    fiñji tandhi-ak -ni-r -më  -t -m
       insects NEG   roast -get-go-IRR-R.PST-3SF-3PL
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She did not roast (and) get the insects (and) go.

(Negative on *roast*)
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    b  nifrim haynimëtm
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new   she.took.them
(uncooked)

(Negative on *get*)
```
    c  tandhihëtatañhatë                 yimët
```
having.roasted.(and).left.(them) she.went

(Negative on *go*)
```
    d  yohre tandhiyakitëhhasiwtm
```
still she.is.roasting.(and).holding.them

(Negative on *roast* and *get*)
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    e  nifrɨm hëtatañhatë             yimët
```
new   SA.having.left.(them) she.went

(Negative on *get* and *go*)
```
    f  tandhihatë                 rohhasëmët
```
SA.having.roasted.(them) she.was.remaining

(Negative on all three roots)
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    g  yohre tandhitwëtm
```
still she.is.roasting.them

At the sentence level, by contrast, the scope of the negative extends only to the clause boundary and must be repeated for each verb in successive clauses. Furthermore, it appears that verbs of subordinate clauses which do not take the irrealis suffix cannot host the negative word in the subordinate clause.

Thirdly, regarding illocutionary force, all roots in a serial construction must exhibit the same illocutionary force; thus the command in example (9)a applies to both 'getting' and 'putting'. While this is also a feature of most complex sentences, there is one subordinate clause form which may manifest a different illocutionary force than its associated independent clause. Number (7)e contains an example of such a clause, which manifests both a hortative marker indicating the category of obligation and a present tense irrealis marker indicating conditionality.

Fourthly, the roots in a serial construction are restricted to one case frame as a whole. An Actor of one of the roots must be a plausible actor for the whole construction and an Actor or Undergoer of the other root must be interpretable as an appropriate Undergoer for the whole. This means that serial roots must have the same Actor (marked by the Actor suffix) unless one of two different Actors may be considered to be the Undergoer, such as the causee in a cause-effect relationship. There are further restrictions mirrored in morphological causative constructions, which will be discussed in Section 5.

In general, interclausal relations do not specify that clauses of a complex sentence exhibit the same Actor. Even those subordinate clauses which are either marked with a so-called 'same Actor' sequence marker or those which tend to exhibit the same Actor as the independent clause (e.g. the Purpose clause) are not as strict in this requirement as are serial root constructions. A subordinate clause manifested by a verb stem (without tense or subject and object markers) tends to have the same subject as the matrix clause (e.g. (7)a). From a text describing the division of labour between men and women, example (7)b contravenes this tendency; the first two subordinate clauses have different Actors even though neither of them indicates what their Actor is, either by NP or by a subject marker on the verb.

The serial construction is most dramatically like lexical items in contrast to combinations of clauses in that collocational constraints restrict serial roots to those which express culturally determined commonly associated events. Thus, any sequence of events may be talked about in juxtaposed clauses (e.g. (11)a) but not every sequence of events may be described by a serial construction (e.g. (11)b, (12)b).

(11)a hodayrt yak-hatë,   yoht   fët   -hatë yi-më   -t
       *axe   get-*SA   *string.bag string.from.head-*SA   *go-*R.PST-3SF
       Having gotten the axe, having strung the string bag from her head,
       she went.

    b *hodaryt yoht   yak-fët   -ni-më   -t -t
       *axe   string.bag get-string.from.head-go-*R.PST-3SF-3SF

The ungrammaticality of (11)b and (12)b is apparently due to semantico-pragmatic reasons rather than a morpho-syntactic constraint such as the doubling of objects. Case frames of serial root constructions allow for double objects as illustrated in (12)a. Furthermore, when an ungrammatical construction is modified to satisfy the ethno-semantic condition, it becomes acceptable (cf. (12)b and (13)).

(12)a m+yt ritm   muh -hambray   -an-m
       *tree insects climb-search.for-*1S-3PL
       The tree I climbed and looked for insects./The tree I climbed, looking
       for insects.

    b *m+yt guñm muh -h+ti-an-m
       *tree stars climb-see -*1S-3PL

Jude Mengumari of Amongabi village provided a mother-tongue speaker reaction of (11)b and (12)b. Initially, both seemed unnatural to him, requiring a paraphrase like the construction in (7)d. Upon further reflection, he would allow (11)b with some reservation. (12)b seemed more clearly ungrammatical to him not only because it is unusual for the two events to occur together, but because there is no apparent reason for them to occur together since stars are

observable from the ground. Once (12)b was modified as in (13), Jude's reaction was immediately *favourable* since it indicated a rationale for putting these two events together in a close-knit sequence.

(13) mɨyt guñm muh -hɨti-marña-an-m
      tree stars climb-see -well -1S-3PL
      I climbed the tree (and) saw the stars clearly.

Based on Jude's comments, we can modify our semantico-pragmatic constraint to read:

> Serialisation of roots in a verb stem is restricted to
> sequences of events which are commonly associated culturally
> or for which there is a culturally based or pragmatic reason
> for their close association.

This form of the constraint leads toward a characterisation of what are typical 'commonly associated' events. Events with pragmatic reasons for their association include at least event-purpose and event-result (including cause-effect) sequences. These are interpretations, of course, which can only be defined specifically according to the world view of a given culture. This explains the culturally based nature of the judgements of acceptability of examples (11)-(13).

With this type of contraint on serial constructions, we are clearly moving toward a semantic characterisation typical of lexical semantics in contrast to morpho-syntactic constraints. Note that the problem before us is not that a non-professional's reaction to grammaticality (i.e. acceptability) must always include a semantic component. We grant that point for all structural levels. In this case, however, the semantic content of an acceptable construction on the sentence level may not be acceptable on the word level in a serial construction. The question is not one of the logical content of something like 'colourless green ideas', but of the appropriateness of a tight-knit serial construction versus a more syntagmatic combination of clauses for certain semantic content. The judgements of appropriateness of form are rather like the processes involved in forming compound words from frequently occuring or specialised noun phrases (cf. Fries 1970:113) which are both syntactically grammatical and semantically meaningful.

As Fries points out, there is variation among native speakers of English as to whether certain phrases are treated as compound words or as phrases. Similar dynamics appear to be operating with serial constructions in the Alamblak case. Serial constructions are related to more cohesive, i.e., unitary compounds and idiomatic compounds in the next section.

4. SERIAL VERB ROOTS, SYNTACTIC COMPOUNDS AND IDIOMATIC COMPOUNDS

In the previous section, serial root constructions were compared with sequences of clauses in complex sentences where their word-like features were highlighted. In this section and the next, serial constructions show a gradation from syntactic-like morphologically productive words to non-productive complex lexical items all of which appear to have derived historically from serial root constructions.

Syntactic compounds and idiomatic compounds exhibit essentially the same formal structure as serial constructions with differences of paraphrasability and semantic analysability. An example of a syntactic and an idiomatic compound are given below in (14) and (15) respectively.

(14)   këfra-e   fëh-r   <u>tu</u> -<u>fɨnah</u> -an-r
        spear-INS *pig*-3SM *throw-arrive*-1S-3SM
        I speared a pig with a spear.

(15)   <u>fak-yirona</u>   -më   -t
        get-feel.pain-R.PST-3SF
        She had birth pangs.

Precise definitions of the notion 'compound word' are difficult to find. As Matthews (1974:Chapter IX) indicates, criteria have been used from phonology, morphology, syntax and semantics often with contradictory conclusions. In Fries' (1970:113) discussion of compound nouns in English, he speaks of a compound as the end result of a compounding process, in other words, a lexicalisation process. 'Varying degrees of cohesion' characterise constructions along a continuum from phrase to compound word.

The Alamblak data supports Fries' claim, indicating a progression from a marginal lexical status for serial constructions to an unequivocal lexical status for idiomatic compounds. We will examine the analysability and productivity of each type of construction, illustrated by (16)-(18).

This will be done in three ways. We will first attempt to paraphrase each verb with a two-clause expression using the same forms, in an effort to demonstrate the analysability of the complex verb conceptually. Then we will consider whether or not the NPs of the clause bear internal case relationships with each root of the stem. Finally we will decide to what degree the semantic relationship between the serial roots is either transparent, vague or has disappeared entirely. That is, to what degree does each verb root contribute to the meaning of the compound? In the latter case, the case frame of the compound cannot be derived from the combined case frames of each predicate in the paraphrased expression.

(16)   met -t   hohora-m   <u>fak-yirona</u>   -më   -t -m
        woman-3SF *thorn* -3PL *get-feel.pain*-R.PST-3SF-3PL
        The woman got/held the thorns (and) felt pain.

(17)   këfra-e   fëh-r   <u>tu</u> -<u>fɨnah</u> -an-r
        spear-INS *pig*-3SM *throw-arrive*-1S-3SM
        I speared a pig.

(18)   met -t   <u>fak-yirona</u>   -më   -t
        woman-3SF *get-feel.pain*-R.PST-3SF
        A woman had birth pangs.

4.1 Analysability

The differing degrees of analysability of the serial roots in (16) and (17) can be illustrated by their paraphrases in (19) and (20). The lack of a potential paraphrase for (18) indicates the synthesised nature of its serial root construction.

(19) met -t   hohora-m   fak-më -t -m. Yirona -më   -t.
      woman-3SF *thorn* -3PL *get*-R.PST-3SF-3PL *feel.pain*-R.PST-3SF
      A woman got/held the thorns. She felt pains.

(20) këfra-t   tu -an-t. Fëh-r   rim -finah -t -r.
      spear-3SF *throw*-1S-3SF *pig*-3SM ELEV-*arrive*-3SF-3SM
      I threw a spear. It arrived over at the pig.

These paraphrases employ the same elements that are present in the related
clauses (16) and (17). The possibility of such paraphrases indicates that the
concepts conveyed by these serial roots are transparently complex.

   This transparency exists in part because each verb root in (16) and (17)
bears a case relationship with a noun in the clause. The serial construction
in (16) is the more semantically transparent, however, because the (semantic)
case relationships are the same as those for the two-clause paraphrase in (19).
The 'woman' is the Actor of 'get' and Experiencer of 'feel pain', and 'thorns'
is the Patient of 'get' in both (16) and (19).

   The case relationships in (17), however, are not entirely the same as those
for its paraphrase in (20). The Actor of 'throw' (I) is the same for both. The
'spear' changes from an Instrument of the whole serial construction in (17) to
the Patient of 'throw' and the Actor of 'arrive' in (20). The 'pig' is the
Patient of the whole in (17) and is the Goal of 'arrive' in (20).

   It is possible to recognise with minimal adjustment the close association
between the events described in (17) and (20). The 'spear' is plainly the
Patient of 'throw' in (17) and in (20). However, with the superimposition of
its Instrument role in the complex event of (17), its relationship to 'arrive'
is not so clearly Actor as it is in (20). The compound form in (17) is not a
clear case of the two related events in (20). The relationship, if it is there
at all, is only vaguely reminiscent of that of a simple temporal sequence, and
thus is only weakly analysable by this criterion.

   The impossibility of finding an exact paraphrase here is not due to the
complexity of case frame relationships. It is possible, as in (21)a and b, to
express with a serial root construction a two-clause expression which exhibits
the same case relationships as those in (20).

(21)a na miy -t   foh -an-t. Miy -t   team   -f f   -tat-t -f[6]
       1S *tree*-3SF *fell*-1S-3SF *tree*-3SF *coconut*-3D I.PST-*hit*-3SF-3D
       I felled a tree. The tree hit two coconut palms.

   b   na miy -t   team   -f foh -tat-an-f
       1S *tree*-3SF *coconut*-3D *fell-hit*-1S-3D
       I felled a tree and it hit two coconut palms.

   The case frame of the serial construction in (21)b may be derived directly
from a combination of the case frames of the two clauses in (21)a. In both
cases 'tree' is the Patient of 'fell' and the Actor of 'hit'; likewise 'coconut
palm' is the Patient of 'hit' and the speaker is the Actor of 'fell'.

4.2 Productivity

   The syntactic nature of the serial form in (16) has been alluded to by its
analysability. It is also highly productive compared to those in (17) and (18).

The roots 'get' and 'feel pain' in (16) equally contribute to the meaning of the whole, manifesting the semantic relationship of temporal succession as expressed in its paraphrase in (19). Either root may be substituted for by numerous verb roots, such as 'step on', 'sit on', 'touch', and 'take', 'show', 'burn', etc., restricted only by the general lexical constraint of common association. The serial root construction in (16) is clearly the most syntactic of the three.

The syntactic compound in (17) is not as productive as the serial construction in (16) but is more so than the idiom in (18). The roots 'throw' and 'arrive' suggest a sequence, but both verb roots do not equally contribute to the meaning of the whole. The first root is clearly basic and may be substituted for by verbs such as tasu *cut through*. The second root may be replaced by such verbs as tasë *cut, lance* but others such as tass *move* (transitive) and tirna *miss* function adverbially (e.g. tass, indicating a fatal blow, or fɨnah *arrive*, indicating here a solid or direct hit).

By contrast, the serial construction in (18) is clearly an idiomatic compound. In addition to lacking paraphrasability, there is no (retrievable) semantic relationship between the verb roots. It is not expressing a transparently complex concept; they together express a specialised meaning which cannot be derived from the meanings of the two roots.

The second root 'feel pain' cannot be substituted for without adding another participant in the clause to function as the Patient of 'get'. In a sense the first root 'get' can be substituted for but only at the expense of creating a completely different meaning from the idiom.

Compounds and idioms appear to have derived from serial constructions in Alamblak. The lexicalisation process at this stage could be described as follows: those serial constructions which occur frequently enough may undergo streamlining changes or changes of focus of interest, which alter the semantic roles of NP participants. The result is a more purely lexical compound.

5. SERIAL AND DERIVED CAUSATIVES AND BENEFACTIVES

In Sections 2-4, serial constructions were introduced as complex verbs with roots semantically related temporally, causatively or by a head-modifier function. The temporal relationship was traced through the various surface forms from complex sentences, to idiomatic compounds. In this section, the causative and benefactive relationships are traced through surface forms from serial or compound constructions to derived verbs. In the previous discussion with temporally related roots, the essential semantic motivation for the development of lexical items was the common association of events. The common association of cause-effect has been mentioned. This and the close relationship of reason-benefit events gives rise to serial and derived constructions. Some of the derived forms manifest transparent verb roots functioning as derivational formatives. Others are purely formatives bearing no synchronic relation to verb roots.

5.1 Causatives

Serial causatives comprise certain combinations of two verb roots, the first of which is either hay *give* or one of five classes of non-transitive verb roots, and the second of which is one of the same five classes of verb roots.

Hay in this position may at times (with uncontrolled experiencer verbs) be
interpreted abstractly as a causative formative as in (22)c.

(22)a wifërt fɨr -gënngɨ-më -t -a
    wind MOTION-*cold* -R.PST-3SF-1S
    The wind blew me cold.

  b yimar fërpam hay -noh   -më -r -a
    man *potion* *give-unconscious*-R.PST-3SM-1S
    The man gave me a potion (causing) me (to become) unconscious.

  c nandëmr -hay -fëhtas -më -r -a
    snake *give-startle*-R.PST-3SM-1S
    The snake startled me./He gave me a snake startling me.

    Two of the four types of derivational causative verbs comprise certain
combinations of verb roots, the first of which is either kak *get* or hay *give*
and the second is one of five classes of non-transitive verbs.

(23)a yarmuthat fak-kkah-më -t -a
    blanket *get-hot* -R.PST-3SF-1S
    The blanket got me warm.

  b hɨnut doht hay -ni-më -t -t
    flood canoe give-go-R.PST-3SF-3SF
    The flood took (literally: *cause to go*) *the canoe.*

    These derivational causatives differ from the serial causatives in two
ways. Semantically the first verb roots in (23)a and b are referentially empty
and function purely as causative formatives. Secondly, there are only two verb
roots that manifest that position with that function.

    The other two derived causative verbs manifest one of two causative prefixes
plus one of three non-transitive verb class roots.

(24)a ha   -fkne -më -r -m
    DE.CAUS-*enter*-R.PST-3SM-3PL
    He caused them to enter (by entering with them).

  b ka   -fkne -më -r -m
    DP.CAUS-*enter*-R.PST-3SM-3PL
    He caused them to enter (by physically taking them).

    The first two derivational prefixes (in (23)) are transparently verb roots.
The second two prefixes (in (24)) are not relatable to verb roots synchronically,
although their similarity in form to the two verb roots hay *give* and kak *get* as
well as their function in the system may make it possible to derive them from
the same source historically.

    Serial causatives express an indirect causation where the effect need not
immediately follow the cause, and the participants need not be at the same
place when the effect occurs. Derived causatives express more direct causation
with ha 'Direct Event Causative' requiring the causer and causee to participate
in the same event and ka 'Direct Physical Causative' requiring physical contact
between the causer and causee.

5.2 Benefactives

Some benefactives (as well as some Causatives) are used in a serial as well as a derivational function. There appear to be none that are purely serial benefactives. This complex benefactive comprises two verb roots the first of which may be any verb which does not host a benefactive role in its basic case frame, and the second of which is hay *give*.

(25) na yawyt yimam <u>wikna-hay</u> -më -an-m
      I dog   people buy -give-R.PST-1S-3PL
      I bought a dog and gave it to the people./I bought a dog for the people.

Note that example (25) may be interpreted as a serial root construction or as a derived benefactive. In the first case, the actor had given the dog to the people at the time of the utterance; in the second case, he had not yet given the dog to them.

When co-occurring with certain verb roots, the root hay cannot be interpreted in the serial sense with the referential meaning of 'give'. In these collocations hay has the sense of *give benefit* and is thus abstracted as a benefactive formative.

(26) na yawyt yimam <u>tat-hay-më</u> -an-m
      I dog   people hit-BEN-R.PST-1S-3PL
      I hit the dog, affecting the people.

The purely derivational benefactive suffix nho cannot be identified with a verb root, but it occurs in the same slot as the benefactive verb root hay with a slight shift in meaning.

(27) suh -nho -an-r
      fall-D.BEN-1S-3SM
      I fell purposely with him for his benefit.

The direct benefactive formative indicates that the actor voluntarily participates in the same event or imitates him in the same type of event that the benefactee participates in either voluntarily or involuntarily.

5.3 Analysability and productivity of derived verbs

In Section 4 we described in some detail the progression from marginal to unequivocal lexical status for serial, compound, and idiomatic compound verbs. A similar progression is evident for serial and derived causative and benefactive verbs in Alamblak.

Serial causatives illustrated by examples (22)a and b are fully analysable and productive. These constructions are paraphrasable by two-clause expressions using the same elements in the same case relationships they have in the serial expressions. Example (28) is a paraphrase of (22)b.

(28) yimar fërpam hay -më -r -a. Ndɨnatpne noh   -më -a
      person potion give-R.PST-3SM-1S *therefore unconscious*-R-PST-1S
      The man gave me a potion. Therefore I became unconscious.

Each verb root of the serial construction equally contributes to the meaning of the whole in a transparent way.

Serial causatives which manifest an uncontrolled experiencer verb root[7] (example (22)c) may be interpreted in two ways. If interpreted as fully analysable the two verb roots maintain their full lexical meaning and bear a semantic case relation with a noun in the clause. The construction expresses a transparently complex event paraphrasable as in (29).

(29)   nandëmr hay -më   -t -r -a fëhtas -më   -a
       snake   give-R.PST-DA-3SM-1S *startle*-R.PST-1S
       He gave me a snake (different actor following) *I was startled.*

The same serial construction may also be interpreted as a derived verb. In that case, like the derived verbs in example (23), the construction is not analysable as a compound verb. The derivational roots hay *give* and kak ∿ fak *get* in examples in (23) do not retain any sense of their lexical meaning which occurs in other contexts. As such they do not bear any semantic case relation with any noun in the clause.

These roots clearly derive from verb roots, however, inasmuch as they have the same form and follow the same morphological and phonological rules that these roots do when functioning as verbs. Furthermore, hay *give* when serialised with uncontrolled experiencer verbs (e.g. (22)c) may be interpreted either as a lexical or as a derivational formative. They are fossilised evidence of the lexicalisation process from serial compound to derived verb.

Since these causative formatives in (22)c and (23) clearly derive from verb roots, the causative prefixes in (24) may be related to serial construction by extrapolation. Even if those derived verbs do in fact derive from serial constructions, there is no longer any basis synchronically to analyse them as lexical compounds. They are fully lexicalised derived verbs.

In terms of productivity the same progression from serial compound to lexical derivative is evident. The combinations of roots in the serial causatives in (22)a and b are highly productive. Either root may be substituted for freely by verbs of one of the five non-transitive classes such as, 'sleep', 'laugh', 'enter', 'be angry', etc.

The derived causative verbs illustrated by examples in (23) are restricted in productivity in the first verb root to the two derivational roots hay *give* and kak ∿ fak *get*. The second root, which provides the lexical content, may be substituted for by many non-transitive verb roots of five classes of verbs. The derived causative verbs illustrated by the examples in (24) are slightly less productive, allowing for a smaller selection of verb roots in the second position from verbs of only three classes.

Serial benefactive verbs are considerably less productive than serial causatives and fewer of them are fully analysable as compound verbs. Those cases of a verb root plus hay *give* which may be interpreted as a serial construction are fully analysable with both verbs contributing their full lexical meaning to the meaning of the whole construction with the roots bearing a case relationship with nouns in the clause.

Every benefactive verb interpretable as a serial compound may also be interpreted as a derived benefactive verb. In these cases the benefactive formative hay *give* is obviously the verb root 'give'. With these, and other cases which allow only a derived benefactive interpretation (example (26)), their analysability stops with identifying the benefactive formative as the

verb root hay *give*. The meaning of the root is completely abstracted as a derivational suffix and neither contributes any of its original lexical meaning to the meaning of the whole nor bears any case relationship with any noun in the clause.

Those verbs formed with the purely derivational suffix nho are not analysable as a compound in any sense (example (27)). They are fully lexical verbs. The 'direct' benefactive suffix is not identifiable with any verb root. The suffix does occur in the same position and follows the same constraints as the other formative hay *give* which are the constraints of all serial root constructions. This suggests that even these verbs are the final stage of a lexicalisation process operating on serial constructions.

The few serial benefactive verbs that there are only partially productive. The second root hay *give* may not be substituted for by any other verb root if the constructive is to remain a benefactive. The first verb root may be freely substituted for with any root which does not require a benefactive role in its basic case frame. The other derived benefactives are productive in an ad hoc way as derived words typically are.

5.4 Constraints on causative and benefactive constructions

Certain semantico-syntactic constraints on causative and benefactive verbs derive directly from constraints on serial constructions. The most startling thing about morphological causatives in Alamblak is that only characteristically intransitive verbs may be causativised and the characteristically transitive verbs cannot be. The constraints are semantic rather than syntactic, viz, the doubling of agent or benefactive roles in the same clause is not allowed. As was mentioned, two roots in a serial construction may have different Actors as long as both are not agents. Similarly, since a causative formative adds an agent (causer) to the construction (with one exception)[7] it cannot co-occur with a verb root which already hosts an agent role in its case frame.

With causatives or other serial constructions, two different actors cannot co-exist as a double subject in the clause; one must be marked as the Undergoer (i.e. direct object). One might suspect that the constraint is against the syntactic doubling of grammatical relations so that (30) is ungrammatical due to the doubling of the object relation in the clause.

```
         Subj.       Obj.      Obj.
(30)   *yima  -r   yimat -r   kr∔y   -t   hay/ha/ka-tat-më   -r   -r
        person-3SM friend-3SM chicken-3SF CAUS      -hit-R.PST-3SM-3SM
```

The constraint is more clearly seen with benefactives, however, because the doubling of objects is possible as long as there is no doubling of agents or benefactees in the clause.

```
         Subj.   In.Obj.   Out.Obj.   Out.Obj.              A  U
(31)   na     yima  -r   yemrë-m   nëngay-t   këmbri  -hay-më   -an-r
       1S     person-3SM meat -3PL  plate -3SF put.into-BEN.R.PST-1S-3SM
       I put meat into the/a plate for the/a man.
```

The crucial factor in the unacceptability of (30) is that both the man and the friend are in competition for the role of agent in the clause and neither can be relegated to the object position which encodes other roles. There are three objects in (31), but the crucial factor there is that there is only one

Agent ('I') and only one Benefactive ('person'). The other objects bear
'Patient' and 'Locative' relations with the verb according to the potential of
its basic case frame. Verbs which already host a Benefactive role in their case
frames cannot accept another introduced by the Benefactive formative, (32)a,
even though double objects present no problem grammatically, b.

```
         Subj.  In.Obj.   Out.Obj.                          Out.Obj.
(32)a   *na     yifem -r   yën -t   gëbrërna-hay-më  -an-r   hëhrampa-m
         1S     father-3SM child-3SF rub       -BEN-R.PST-1S-3SM  medicine-3PL
         *I rubbed medicine (on) a girl for (her) father.

         Subj.  In.Obj.  Out.Obj.  Out.Obj.       INS
     b   na     yën -r   wura-t    hëhrampa-m  rmëntha-e   gëbrërna-më  -an-r
         1S     child-3SM leg -3SF  medicine-3PL cloth   -INS  rub       -R.PST-1S-3SM
         I rubbed medicine (on) the leg (of) the child with a cloth.
```

In (32)a 'father' and 'child' are competing Benefactive roles. In (32)b
the 'child' is the only Benefactive; other objects are a Locative (or Patient)
'leg' and a Patient 'medicine'.

The constraints here are precisely those which operate for serial root
constructions. They apparently derive from the constraints on serial construc-
tions from which they developed. Derived causatives and benefactives in Alamblak
represent the final stage in a lexicalisation drift of commonly associated events
through gradations of gradually more cohesive serial and compound structures.

6. CONCLUSION

Serial root constructions in Alamblak appear to represent the first stage
in a lexicalisation process which is controlled or motivated by the semantico-
pragmatic principle of the common association of events. That is, commonly
associated events tend to be expressed by lexical items. They form part of a
structural continuum between phrase and word from which (pure) compounds and
idiomatic compounds, derived causatives and benefactives develop.

NOTES

1. Alamblak, a so-called Papuan or non-Austronesian language, is spoken by
    1,200 people in the East Sepik Province of Papua New Guinea.

2. Sapir (1911) originally discussed noun incorporation with North American
    languages in terms of commonly associated objects and events. Lord (1973:
    269) and Longacre (1976:150ff) make reference to this and a similar notion
    with respect to serial verbs and interclausal relations.

3. See Bruce (1984:206:277) for a detailed description of Alamblak verbs.
    Incorporation of noun, adjective and time word roots into the verb stem is
    described there as a part of the general serialisation process but only
    serialised verb roots are discussed in this paper.

4. cf. Chomsky (1965:184-192), Fries (1970:113) and Matthews (1974:Chapter IX).

5. Abbreviations used in this paper are as follows:

BEN	benefactive	INF	infinitive
CAUS	causative	INS	instrument
COND	conditional	I.PST	immediate past tense
CPL	completive	IRR	irrealis
D	dual	LIG	ligature
D.CAUS	direct causative	M	masculine
DA	different actor	NEG	negative
DE	direct event	PL	plural
DEP	dependent	PROG	progressive
DP	direct physical	PUR	purpose
ELEV	elevational	R.PST	remote past tense
E/R	emphatic reflexive	SA	same actor
F	feminine	S	singular
G	general	SIM	simultaneous
GEN	genitive	Subj.	subject
HORT	hortative	1	first person
IMPER	imperative	2	second person
IMPF	imperfective	3	third person

6. The Immediate Past tense prefix appears here before the stem but is not manifested preceding the f-initial stem in (21)b.

7. When hay *give* is serialised with a controlled experiencer verb, its abstract interpretation is as a transitiviser rather than a causative formant (example (33)). The added participant is interpreted as a Patient or Referent rather than a Causer (Actor) because controlled experiencer verbs already have a highly agentive Actor in their basic case frame. Since, as explained in 5.4, serial constructions allow only one Actor hay *give* plus controlled experiencer verb-roots cannot be interpreted as causatives as it would add a second Actor, the causer to the case frame.

(33) nandëmr hay -ninge-më -an-r
      snake   give-laugh-R.PST-1S-3SM
      I laughed at the snake.

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